

Claims

1. A detection system for detecting an object in relation to a movable door, said detection system comprising:

an object detection sensor located on a movable door for sensing an object within a sensing zone, wherein the sensing zone is adjustable;

a door position sensor for sensing position of the door relative to at least one of open and closed door positions; and

a controller for adjusting the sensing zone of the object detection sensor as a function of the sensed door position.

2. The detection system as defined in claim 1, wherein the door is a powered door on a vehicle.

3. The detection system as defined in claim 2, wherein the powered door is a powered lift gate.

4. The detection system as defined in claim 1, wherein the object detection sensor is located so that the sensing zone covers the opening path of the door.

5. The detection system as defined in claim 1, wherein the controller further changes movement of the door when an object is sensed in the sensing zone.

6. The detection system as defined in claim 5, wherein the controller reverses direction of movement of the door when the object is sensed in the sensing zone.

7. The detection system as defined in claim 1, wherein the object detection sensor comprises a radar sensor.

8. The detection system as defined in claim 6, wherein the sensor comprises first and second radar sensors.

9. The detection system as defined in claim 6, wherein the radar sensor is a differential pulsed Doppler radar sensor having a dynamic range gate.

10. An object detection system for detecting an object in relation to a movable powered door on a vehicle, said detection system comprising:

an object detection sensor located on a movable powered door on a vehicle for sensing an object within a sensing zone, wherein the sensing zone is adjustable;

a door position sensor for sensing position of the movable powered door; and

a controller for adjusting the sensing zone of the object detection sensor as a function of the sensed door position, wherein the controller further changes movement of the powered door when an object is sensed in the sensing zone.

11. The detection system as defined in claim 10, wherein the controller changes movement of the powered door so as to reverse direction of movement of the powered door upon detecting an object in the sensing zone.

12. The detection system as defined in claim 11, wherein the controller prevents reversal of direction of movement of the powered door once the powered door position reaches a predetermined position.

13. The detection system as defined in claim 1, wherein the object detection sensor is located so that the sensing zone covers the opening path of the door.

14. The detection system as defined in claim 10, wherein the powered door is a power lift gate.

15. The detection system as defined in claim 10, wherein the object detection sensor comprises a radar sensor.

16. The detection system as defined in claim 15, wherein the sensor comprises first and second radar sensors.

17. The detection system as defined in claim 15, wherein the radar sensor is a differential pulsed Doppler radar sensor having a dynamic range gate.

18. A method of detecting an object in relation to a movable door, said method comprising the steps of:

sensing the presence of an object within an adjustable sensing zone;

sensing position of a movable door relative to at least one of open and closed door positions; and

adjusting the sensing zone as a function of the sensed door position.

19. The method as defined in claim 18 further comprising the step of changing movement of the door when an object is sensed in the sensing zone.

20. The method as defined in claim 19, wherein the step of changing movement of the door comprises reversing direction of movement of the door when the object is sensed in the sensing zone.

21. The method as defined in claim 18, wherein the step of sensing the presence of an object within an adjustable sensing zone comprises generating the sensing zone in the opening path of the door.

22. The method as defined in claim 18, wherein the step of sensing the presence of an object within an adjustable sensing zone comprises transmitting and receiving radar signals.

23. The method as defined in claim 22, wherein said step of transmitting and receiving radar signals comprises transmitting and receiving radar signals with a differential pulsed Doppler radar sensor having a dynamic range gate.

24. The method as defined in claim 18, wherein the step of sensing position of the door comprises sensing position of a powered door on a vehicle.

25. The method as defined in claim 24, wherein the powered door comprises a powered lift gate.